

EFFECTS OF THE AIR STRIKES ON THE ECONOMY

1. (S/NFD) Over-All Economic Effects:

a. The economic losses caused by air strikes in North Vietnam are still small in relation to total economic activity because the targets attacked still are generally outside major economic areas. However, there are now considerably more indications of localized strains upon the economy, most notably in food supply and distribution. The bombings of the railway lines leading from Hanoi to the northwest and northeast are probably having a greater adverse effect on the economy than any targets attacked to date. With the interdiction of three important land lines of communication, domestic production, distribution, and reconstruction are being curtailed and exports and imports reduced. Another serious effect is the diversion of scarce resources from productive uses to the repair of damaged facilities and development and use of alternate means of transportation. This diversion has almost certainly retarded if not stopped work on a number of high priority economic construction projects. The capabilities of North Vietnam's armed forces have not been affected significantly by attacks on economic facilities. Although the movement of personnel, equipment and supplies is hampered by damaged transportation facilities, the armed forces place little direct reliance on the North Vietnamese economy for materiel.

b. Direct economic damage is between 15 and 16 million dollars

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and measurable indirect economic losses amount to more than \$8 million -- mainly reductions in foreign trade and agricultural output. The direct economic losses that can be measured have fallen most heavily on the transport sector of the economy. The cost of permanent reconstruction of rail/highway bridges would be on the order of 7 to 8 million dollars and the replacement or repair of destroyed transport equipment would cost an additional \$3.3 million. Temporary measures to keep traffic moving would cost an additional \$850,000. Reconstruction of the damaged electric power plants would cost about \$4.5 million. Repair costs for the petroleum storage facilities are estimated at about 500 thousand dollars. Through September, there has been a decline in the value of exports of almost \$5 million. In addition there have been losses from lowered production. Most of these production losses cannot be quantified, but it is estimated that the potential reduction in rice crops this year resulting from shortages of power for irrigation will amount to roughly \$3.5 million. The cost of reconstruction, replacement, and repair of damaged facilities if attempted, would represent over 7 per cent of total annual investment and about 15 per cent of annual investment in industry.

c. The official North Vietnam press has tacitly admitted failure to carry out simultaneously all the necessary defense, reconstruction and production tasks. Party leaders have called for a major reorganization of the Communist Party apparatus in order to strengthen the provincial and district committees of the Party.

These officials have primary responsibility for directing defense mobilization and production in their respective regions. Thus problems in organization are compounding the chronic shortages of skilled manpower which have become even more apparent during the period of the air strikes. Large numbers of workers have been sent south to repair the damage. Their effectiveness has been impaired, however, by severe local shortages of food and construction materials caused by poor distribution and problems in transportation. Some of the effects of the shortages of skilled manpower may be avoided, however, by the arrival of additional Soviet and Chinese technical personnel. North Vietnam is now receiving increasing amounts of technical advisers to assist in reconstruction as well as structural components and materials, not only from China, but also from other Communist countries as well. The transfer of a considerable portion of North Vietnam limited resources of skilled labor and construction materials to repair and reconstruct the bombed facilities constitutes an appreciable drain in amounts available for the planned investment program and has required a reordering of investment priorities. If orderly economic development is to be continued, there must be a more rapid increase in aid from other Communist countries than has been observed to date.

d. The single most significant air strike against transportation in North Vietnam was the bombing of a bridge on the Dong Dang-Hanoi railroad line on 20 September. This route is the principal means

by which North Vietnam has received imports of military equipment and economic goods from China by land. The organization of alternative road and sea transportation to compensate for the loss of through rail traffic will take some time. In the mean time, the North Vietnamese will resort to temporary expedients to try to keep military and high priority economic traffic moving past the interdicted bridge. Continued interdiction of the line will have serious consequences in maintaining production of the two blast furnaces at Thai Nguyen, North Vietnam's only iron and steel complex, which has been receiving about 500 tons of coking coal from China by rail each day.

2. (S/NFD) Electric Power:

There were no air strikes against electric power targets during the period under review. Previous damage to five power plants had reduced the total power generating capacity by 13.5 per cent. Restoration of these plants will probably take at least one year and possibly as long as three years, and will require substantial foreign technical and material assistance. Except for Nam Dinh, the plants represented the only source of electricity in the respective areas. There is no evidence of rehabilitation or substitution of large portable generating units for the damaged facilities. The over-all reduction in industrial output resulting directly from the lack of electric power cannot be measured in quantitative terms, but the affected areas, except for Nam Dinh, are

not major contributors to the national economy. The effect has been curtailment in the output of some mining, ore processing, fertilizer, food processing, and other minor industrial plants. Nam Dinh, the location of an important textile industry, may be receiving electricity from the power grid via connections with Hanoi and Hung Yen. The failure to provide alternative sources of electric power for the operation of affected agricultural irrigation systems could result in a reduction of about one per cent in the annual national rice crop.

3. (S/NFD) Petroleum:

No appreciable damage to bulk petroleum storage tanks has been accomplished since the previous report. The air strikes against these facilities through September have had only a slight impact on the economy. Total petroleum storage capacity in the country is large in relation to normal consumption. Even with 18.3 per cent of the DRV bulk petroleum storage facilities destroyed, the remaining tankage is still equivalent to about one year's consumption. The air strikes against storage facilities at Nam Dinh, Vinh, and Phu Qui, nevertheless, have eliminated essentially all bulk storage south of Haiphong. It has been necessary, therefore, to shift petroleum deliveries to the southern provinces from bulk coastal transports to trucks and to inland waterways. This measure has increased the requirement for tank trucks, drums, and cans to provide local supplies of petroleum, thus intensifying an already

complicated transportation problem in this region.

4. (S/NFD) Telecommunications and Postal Service:

Bomb damage still has not significantly altered the communications capability of North Vietnam, or the flow of essential communications traffic. No new telecommunications facilities have been damaged as a result of direct air strikes during the current reporting period. Cumulative damage resulted from direct air strikes against only two radio installations, but air strikes against bridges, roads, and railroads have produced collateral damage to telecommunications wirelines. Dislocations in communications resulting from wirelines breaks probably have been met by establishing priorities for communications traffic, and by the use of other means of communications. Postal service throughout the DRV has been affected by the interdiction of road and railroad transportation. Steps have probably been taken to limit the quantity of mail and to use bicycles and couriers in place of rail and motor vehicle transportation. These measures would tend to produce a general decline in the effectiveness of postal service to both official and public users.

5. (S/NFD) Food and Agriculture:

a. There is increasing evidence that the food problem in North Vietnam is being aggravated by the air strikes. It is now reported that in one locality to the south of Hanoi the rice ration had been cut by 12 per cent as early as July, and that pork consumption had

been reduced from one ration every five days to one ration per month. In a country which is normally a food deficit area with below normal consumption levels, these cuts in rations are serious. The chief causes of the worsening food shortage are transportation and organizational difficulties. Food shortages are reported to be particularly serious in the southern provinces where members of the "volunteer youth group" and other workers have been sent to help repair transportation facilities damaged by the air strikes. Some "volunteers" have deserted because of adverse living conditions, including food shortages. This implies that rice supplies of construction workers generally in the south have been reduced sharply.

b. There is some information which suggests that the air strikes are interfering with normal farming activity and that production may be lowered somewhat, but we are unable to evaluate the extent of the possible shortfall. The bombing attacks on the electric power network in Thanh Hoa and Nghe An Provinces, however, have interrupted normal irrigation services on an estimated 40,000 hectares of rice land. If these irrigation systems remain out of operation over the next two months, the fall rice harvest (October-November) in these areas could be reduced by 30,000 metric tons or an equivalent loss of about \$3.5 million worth of rice (local retail basis). A shortfall of this amount of rice in the southern provinces, nevertheless, would have little appreciable effect on total rice production in North Vietnam which averages about 4.5 million metric tons annually.

6. (S/NFD) International Trade and Shipping:

The bombing of North Vietnam has continued to reduce the volume of seaborne exports, particularly exports to Free World countries, which bring North Vietnam foreign exchange. The cumulative loss during the period 1 April to 30 September 1965 is estimated at \$4.9 million. In spite of measures to restore traffic on the Hanoi-Lao Cai railroad line, the export of apatite has ceased completely. The monthly loss in export earnings resulting from the failure to ship apatite will be about \$518,000. Other reductions in export trade that are at least partially attributable to the bombings have occurred in exports of coal, cement and pig iron, which normally earn for North Vietnam substantial amounts of Free World foreign exchange. Preliminary shipping data for September indicate that the number of ships arriving at the ports of North Vietnam declined for the fourth successive month. The trend in the decline in Free World ships serving the ports of North Vietnam apparent since January is attributable to the increase in US involvement in North Vietnam and the resulting inability to sustain export programs. No additional indications of congestion in the port of Haiphong have been received since the previous report.

7. (S/NFD) Transportation:

- a. During September, an additional 3 railroad and 28 highway bridges in North Vietnam have been destroyed or severely damaged, making a total of 121 bridges destroyed or severely damaged to date.

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A total of five bridges north of Hanoi are confirmed as being unserviceable. Three of these are railroad bridges on the Hanoi-Lao Cai railroad leading to Yunnan Province of China, and two are located on the important Hanoi-Dong Dang railroad line leading to Kwangsi Province of China. Strikes have been effected on at least two other rail bridges on the Hanoi-Lao Cai line, but damage has not been confirmed. The remaining bridges are located on the railroad line and on the roads south of Hanoi.

b. The single most significant air strike against transportation in North Vietnam has been the bombing of a bridge on the Dong Dang-Hanoi railroad line on 20 September. This route is the principle means by which North Vietnam has received imports of military and economic goods from China. Although road and sea transportation are alternates to this railroad line, the organization of shipments by these means to compensate for the loss of through rail traffic will take some time. It is estimated, therefore, that the Communists will make strenuous efforts to restore rail traffic on this bridge and that restoration will probably be accomplished within a month. In the meantime, they will resort to temporary expedients to try to keep military and high priority economic traffic moving past the interdicted bridge. The most serious consequence for industry would be a failure to receive coking coal, after stocks are exhausted, for the two blast furnaces at Thai Nguyen, North Vietnam's only iron and steel complex. This plant has been receiving about 500 tons

of coking coal from China by rail each day. It will be extremely difficult and costly to truck this amount of coal in addition to other traffic to North Vietnam, and it will require some time to establish a regular movement of this tonnage by sea and inland waterways to Thai Nguyen. Moreover, the shift of large amounts of coal and other goods to sea transportation could complicate already persistent problems in cargo handling at the port of Haiphong.

c. Temporary repairs have been made on at least three bridges on the Hanoi-Lao Cai line, indicating that priority is being given to the restoration of through railroad traffic between Hanoi and Yunnan Province which was first interdicted in mid-July. During the restoration period, inland water transportation on the Red River and a rail and truck shuttle service around bombed bridges have probably been used for priority traffic normally moving on this railroad. The difficult task of providing such service for apatite and petroleum products, the two primary commodities moved on the northern part of the line, apparently was either not attempted or was unsuccessful. The export of apatite mined in the area of Lao Cai ceased at the beginning of August, and there was evidence in September of a shortage of petroleum products in Yunnan Province. In the past, the bulk of the petroleum products for Yunnan was moved in tank cars through North Vietnam on the Dong Dang-Hanoi-Lao Cai railroad lines. The importance of maintaining traffic over this route is dramatically illustrated by the recent discovery of the

construction of a road which is nearing completion paralleling the railroad.

d. The problem of transportation in the southern part of North Vietnam resulting from continued aerial attacks has been compounded by flooding and by the influx of large numbers of construction workers for repair and reconstruction activity. Flooding in some areas has caused problems both in repairing bomb damage to transportation and to movements over those portions of the line where temporary expedients have been used to restore traffic. Fords used for by-passing bombed bridges often can no longer be used because of high water; this situation will probably hold through October because of the high rainfall in the Vinh area at this time of the year. The migration of thousands of workers from the north has increased the food requirements in an area which normally produces only a subsistence level of food. All of these requirements are not being satisfied because of transportation, distribution and organizational problems. There is also evidence that all requirements for construction materials are not being moved into the area because of a shortage of transportation.

e. The problems resulting from the destruction of bridges have been increased by the destruction and damage to transportation equipment.* About 150 railroad freight cars representing nine

*The estimates of destruction and damage in this section include only those land vehicles and water craft that can be used within the economy and differ slightly from the totals contained in Tab A.

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per cent of the 1964 inventory have been destroyed and about 390 freight cars representing an additional 24 per cent of the inventory have been damaged. Even though these figures include some double counting which cannot be eliminated, the North Vietnamese could be confronted with a serious freight car shortage if it were not for the reduced requirements resulting from the interdiction of lines, and aid from the USSR and China. The Chinese, for example, have made cars available from the stock which normally operates to and from and within Yunnan Province. Less than 20 additional trucks were destroyed during the reporting period, however, and about 45 damaged, leaving the total number destroyed and damaged at only five per cent of the estimated inventory -- an amount much less than truck imports since the air attacks began. Thirty-seven additional barges and one ferry were destroyed and 48 barges and seven ferries were damaged, making a total of 204 barges and ferries destroyed and 351 damaged to date. Only a few locomotives and a comparatively small number of smaller water craft have been damaged or destroyed. The total cumulative effect of the air strikes against the transport system through September has been a continued reduction in its over-all capacity and flexibility which has resulted in interruptions in the normal movements of economic goods, the most serious of which have been imports from China and export of apatite. Transportation connections between

the major industrial and population centers and the primary area of agricultural production, however, remain intact.

8. (S/NFD) Costs.*

The economic effects of the air attacks for which values can currently be estimated amount to about \$25,000,000. The cost of permanent reconstruction of rail/highway bridges would be on the order of 7 to 8 million dollars, for the electric plants about \$4.5 million, for petroleum storage facilities about 500 thousand dollars, and for replacement or repair of destroyed or damaged transport equipment about \$3.3 million. Temporary measures to keep priority traffic moving by truck on damaged routes will cost over 850,000 dollars. The value of the potential reduction of the rice crop resulting from shortages of power for irrigation is still roughly estimated at \$3.5 million, and the decline in the value of exports through September is estimated at \$4.9 million. These are the costs to the economy of North Vietnam that can be quantified. There are many additional indirect economic costs resulting principally from the strikes against transportation and electric power facilities.

* Values are given in current US dollars estimated at prices in North Vietnam. The cost of reconstructing the military installations destroyed by the air strikes is not included in this report.

